KILLER HARDWARE TIPS

Too Cool To Follow Rules

IF YOU'RE A USER WHO CAN'T LEAVE THINGS ALONE IF THERE'S A CHANCE YOU CAN MAKE THEM BETTER, EVEN IF IT MEANS BUCKING THE NORM, READ ON. WE HAVE SOME TIPS and tricks that just might make you more productive.

Rev Up Your CD-RW

You overclocked your CPU and video card, but what about your CD burner?

Hardware hackers have discovered that several CD-RW drives from Lite-On use the same hardware but are sold as multiple models with different max writing speeds. The only difference in the models is the firmware, which limits the top speed of less expensive drives. By upgrading the firmware, users can make a drive read and write more quickly and enable other features.

The hack works with every Lite-On brand drive, plus manufacturers' drives Lite-On manufactures, says Jan Willem, Webmaster of CDFreaks.com. These may include drives sold with Iomega, Plextor, Ricoh, Sony, Verbatim, VisionTek, Trax-Data, TDK, and other brand labels.

A list of hackable drives and upgrade procedures is available at www.cdrinfo.com/Sections/Articles/Specific.asp?ArticleHeadline=Overclocking&Series=0. An extensive FAQ that's worth reading is at club.cdfreaks.com/showthread.php?s=&threadid=42344. The hacking process varies from model to model, but it generally involves using a flashing utility to load new firmware onto the drive, a simple process that takes only a few minutes.

"A lot of drives can be upgraded, but most of them are actually Lite-Ons. In the past, HP drives could be upgraded, and currently upgrades for LG drives are available," says Willem. If your drive isn't listed, you're out of luck, but watch for future upgrade possibilities. "It's likely that it is also possible to do this with other drives," says Willem.

"We have a strong belief Lite-On drives have become more popular because of the overclocking thing. We think they never thought about someone doing something like this; we expect that drive manufacturers will limit this in the future," says Willem.

Lite-On branded CD burners, and drives that company manufactures, are popular with hardware hackers because they are easy to speed up with new firmware.

Installing an unauthorized firmware upgrade will void your warranty, and if the firmware isn't a perfect match for your CD burner, it could reduce its reliability or kill the drive. Carefully inspect your drive to make sure it's truly an upgradeable model. For example, some companies sell drives using mechanisms from several manufacturers, so two drives might seem identical, but one might be upgradeable and one not. Never attempt to upgrade a drive with firmware that assumes a different hardware maker or chipset.

Software, such as Nero InfoTool (www.cdspeed2000.com), can identify your drive and its firmware version. Nero CD Speed 2000 (same URL) will benchmark its speed before/after a firmware upgrade.

If your CD writer is already fairly fast, upgrading can shave a few seconds off the burn time, but don't expect miracles. If your 24X writer burns a CD-R disc in five minutes, it might take 4:30 minutes at 32X—hardly an earth-shattering difference. Increasing the drive's read and burn speeds can be just the tip of the iceberg, though.

"The overclocking does not only change the speed of the drive but also the writing strategy. For example, an upgrade can make the drive switch from using Z-CLV to CAV," says Willem.

Z-CLV (zone constant linear velocity) means that the writer starts at one speed, then speeds up as it transfers large amounts of data. With the CAV (constant angular velocity) burn mode, the drive takes less time to reach its maximum speed.

"So the overall speed increases more than just the few seconds you would assume looking at the numbers," Willem says.

The Lite-On hack also adds support for Mt. Rainier, a specification that aims at making CD-RW operation more like a floppy drive, with quicker formatting and support for UDF (Universal Disk Format).

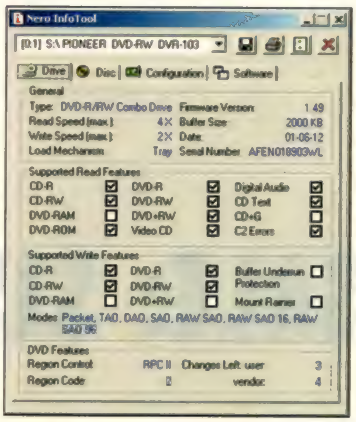
Are discs burned at hacked speeds reliable? "We strongly believe that drive manufacturers know their limits. 48X writing speed in combination with good media does not give any worse results then slower writing speeds," says Willem. "The upgraded 32X should produce the same quality CD-Rs as the 48X Lite-Ons." Be sure to use media rated for the speed you're burning at.

Surprisingly, perhaps, Lite-On seems pretty relaxed about the hack. "From our point of view, what hackers do: Don't ask,

don't tell," says Esteban Kim, Lite-On marketing manager. "We are aware it is going on, but it is hard to stop people from doing it. It is tough to enforce from a practical standpoint."

"We don't recommend people do this," he adds. Although the hardware may be the same, drives haven't been tested at speeds higher than their maximum speed rating and may fail once upgraded.

"It should work. But if you're going to tweak with that thing, you void the warranty," says Kim. "You gain the benefit of the technology, but you need to be aware that you might be burned."



Nero InfoTool can reveal the sundry details of your CD-R burner, including model and firmware information.

A V.92 modem will give you the greatest possible oomph from a phone-line connection to the Internet.

V.92-rrooom!

Broadband Internet is great if it's available and you can afford it. But many users still must slog along with analog modems. If you're such a user, it makes sense to have the fastest modem possible. Today, that means utilizing the V.92 protocol.

A V.92 modem has four new features available when communicating with a compatible ISP, including Modem On Hold, PCM Upstream, Quick Connect, and V.44 Compression.

V.92's raw download speed isn't faster than a 56K (V.90) modem; both have a max download rate of about 53Kbps. V.92 modems include V.44, though. This compression protocol lets more text and HTML data download at once.

With Modem On Hold, or Internet call waiting, if you get an incoming call while you're online, a window appears on your screen letting you know you have a call. If you take the call, the modem puts the ISP on hold for a few minutes (the ISP sets the maximum time). After you hang up, you can then resume the Internet connection unperturbed. The feature requires special software, but modem makers have only released this software for Windows.

PCM Upstream digitally encodes data the modem sends, increasing upload speeds from 33.6Kbps to 48Kbps in V.90 modems.

Quick Connect reduces the time it takes to log in to about 12 seconds. The first time the modem connects to the ISP, it memorizes information about the connection. For future calls, the modems establish the connection more quickly using this information.

If you use a V.90 modem, check the manufacturer's Web site for a flash upgrade to V.92.

The V.x naming convention and underlying protocols originate at the ITU (International Telecommunication Union; www.itu.int), which coordinates telecommunications networks and services. Protocols starting with "V." are standards for data communication over the telephone network.

V.92 modems have been on the market for more than a year, but large ISPs have been slow to add the hardware necessary to support it. We asked AOL, MSN, EarthLink, and Worldnet about their support for V.92. None have committed to supporting it. However, the dial-up network providers these companies use are slowly migrating to V.92, so users in some cities have found unpublished or unofficial V.92 dialups. Local and regional ISPs may be a better bet if you're looking for a guaranteed V.92 connection. Modemsite.com offers a list of ISPs that support V.92 and whether each supports V.44 and PCM Upstream protocols.

Even if an ISP supports V.92, its support for the PCM Upstream and Modem On Hold features is optional. Check if they are offered before signing up. CPU

by Kevin Savetz

Infinite Loop

Hard Drivin'

We've all heard the jokes: If Microsoft made cars, they would run slower on old roads and sometimes crash for no reason. Here's a crash course on the parallels between safer car design and Windows.

1965 Ralph Nader's "Unsafe At Any Speed" points out the Chevrolet Corvair's safety shortcomings.

1967 The National Highway Safety Bureau mandates seat belts in all seating positions in new vehicles.

1969 Ford introduces rear-antilock brakes; Chrysler puts them on all four wheels in 1971.

1978 The National Highway Traffic Safety Administration (formerly the NHSB) issues bumper standards for low-speed collisions.

1998 New passenger cars have mandatory driver and front-passenger airbags; light trucks require dual airbags in 1999.

1992 Dr. Watson comes standard in Win3.1.

1996 Symantec offers a free version of Norton CrashGuard for Win95.

1998 Wildfile releases GoBack, which rolls back a Windows system to a previous state.

2000 WinMe comes with System Restore.

2001 WinXP protects its system files and makes it more difficult for users to install uncertified drivers (drivers licenses, anyone?).

Sources: NHTSA, Insurance Institute for Highway Safety, Microsoft, Symantec.